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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/677,880	10/03/2000	Akihiro Yoshida	197811US2	6163

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EXAMINER
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AGGARWAL, YOGESH K

ART UNIT	PAPER NUMBER
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2615

DATE MAILED: 02/10/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 09/677,880	<b>Applicant(s)</b> YOSHIDA ET AL.	
	<b>Examiner</b> Yogesh K Aggarwal	<b>Art Unit</b> 2615	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 01 November 2004.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-12 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 19 July 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |                                                                                                                        |                                                                                         |
|------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                            | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____                                                |

***Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 11/01/2004 has been entered.

***Claim Objections***

2. Applicant is advised that should claim 6 be found allowable, claim 8 will be objected to under 37 CFR 1.75 as being a substantial duplicate thereof. When two claims in an application are duplicates or else are so close in content that they both cover the same thing, despite a slight difference in wording, it is proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim. See MPEP § 706.03(k).

***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Udagawa (US Patent # 6,195,125) in view of Tanaka et al (US Patent # 4,884,090).

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[Claim 1]

Udagawa teaches a digital camera (figure 1) for acquiring image data by acquiring a subject image, comprising an imaging device (3) configured to acquire said subject image (col. 1 lines 6-8), a piezoelectric element (9) configured to displace said imaging device (col. 5 lines 49-52 figure 1). Udagawa fails to teach

(A) a comparing unit configured to compare a reference voltage corresponding to a predetermined amount of displacement of the imaging device with a piezoelectric element voltage and to provide an output indicating that the piezoelectric element voltage is less than the reference voltage;

(B) a charging unit including at least one energy accumulating unit is configured to power a strobe unit and

(C) a control element configured to supply electricity from the energy-accumulating unit of the charging unit to the piezoelectric element to raise said piezoelectric element voltage responsive to the comparing unit providing the output indicating that the piezoelectric element voltage is less than the reference voltage.

However Tanaka et al. teaches a comparing unit (figure 5b, microcomputer 21) configured to compare a reference voltage (100 volts) corresponding to a predetermined amount of displacement of the shutter with a piezoelectric element voltage (col. 6 lines 8-18) and to provide an output indicating that the piezoelectric element voltage is less than the reference voltage (col. 10 lines 3-16, output NO of step # 50 in figure 6).

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a charging unit (figure 5a) including at least one energy accumulating unit (CM) is configured to power a strobe unit (figure 5b discloses a driving circuit 26 for a strobe unit, col. 6 lines 19-28) and

a control element (21) configured to supply electricity from the energy-accumulating unit (CM) of the charging unit to the piezoelectric element (Bi or 14) to raise said piezoelectric element voltage responsive to the comparing unit providing the output indicating that the piezoelectric element voltage is less than the reference voltage (col. 10 lines 12-32).

Therefore taking the combined teachings of Udagawa and Tanaka, it would have been obvious to one skilled in the art at the time of the invention to have been motivated to have used the arrangement of Tanaka having the claimed limitations (A), (B) and (C) with the arrangement of Udagawa having a piezoelectric element being used for displacing the imaging device in order to have a sufficient allowance so that if the main capacitor discharges below a certain voltage, it can be sufficiently charged with the method taught in Tanaka.

[Claim 2]

The charging unit (figure 5a) including at least one energy-accumulating unit includes a main capacitor (CM, col. 6 lines 19-28).

[Claims 3]

Udagawa teaches a digital camera (figure 1) for acquiring image data by acquiring a subject image by shifting pixels, comprising an imaging device (3) configured to acquire said subject image (col. 1 lines 6-8), a piezoelectric element (9) configured to displace said imaging device (col. 5 lines 49-52 figure 1) acquiring a first image in a state of displacing said imaging device,

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and to acquire a second image by discharging said piezoelectric element (figure 1: 9) in a state of not displacing said imaging device (col. 5 lines 9-12, col. 5 lines 45-52).

Udagawa fails to teach

(A) a switching unit configured to enable a charging unit configured to charge said piezoelectric element by the energy accumulated in at least one main capacitor configured to supply energy to a strobe unit emission or to enable discharge of said piezoelectric element;

(B) comparing unit configured to compare a reference voltage corresponding to a predetermined amount of displacement of the imaging device with a piezoelectric element voltage and to provide an output indicating that the piezoelectric element voltage is less than the reference voltage;

(C) and a control unit configured to control said switching unit to enable the charging unit including the comparing unit to enable the charging of said piezoelectric element by the energy accumulated in the at least one main capacitor in response to the output of said comparing unit.

However Tanaka teaches

a switching unit (figure 5a) configured to charge said piezoelectric element (Bi or 14) by the energy accumulated in at least one main capacitor (CM) configured to supply energy to a strobe unit emission (26) or to enable discharge of said piezoelectric element (col. 6 lines 19-28, col. 8 lines 46-57);

a comparing unit (figure 5b, microcomputer 21) in the charging unit configured to compare a reference voltage (100 volts) corresponding to a predetermined amount of displacement of the shutter with a piezoelectric element voltage (col. 6 lines 8-18) and to provide

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an output indicating that the piezoelectric element voltage is less than the reference voltage (col. 10 lines 3-16, output NO of step # 50 in figure 6);

and a control unit (21) configured to control said switching unit (figure 5a) to enable the charging unit including the comparing unit to enable the charging of said piezoelectric element by the energy accumulated in the at least one main capacitor (CM) in response to the output of said comparing unit (col. 10 lines 12-32).

Therefore taking the combined teachings of Udagawa and Tanaka, it would have been obvious to one skilled in the art at the time of the invention to have been motivated to have used the arrangement of Tanaka having the claimed limitations (A), (B) and (C) with the arrangement of Udagawa having a piezoelectric element used for displacing the imaging device in order to have a sufficient allowance so that if the main capacitor discharges below a certain voltage, it can be sufficiently charged with the method taught in Tanaka.

[Claims 4 and 9]

Udagawa teaches a digital camera (figure 1) for acquiring image data by acquiring a subject image by shifting pixels, comprising an imaging device (3) configured to acquire said subject image (col. 1 lines 6-8), a piezoelectric element (9) configured to displace said imaging device (col. 5 lines 49-52 figure 1) acquiring a first image in a state of displacing said imaging device, and to acquire a second image by discharging said piezoelectric element (figure 1: 9) in a state of not displacing said imaging device (col. 5 lines 9-12, col. 5 lines 45-52).

Udagawa fails to teach

(A) a switching unit configured to enable a charging unit including a charge adjusting circuit to perform a charging operation to charge said piezoelectric element to a specified value

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of charged voltage by the energy accumulated in at least one main capacitor configured to supply energy to a strobe unit emission or to enable discharge of said piezoelectric element,

(B) a control unit configured to control said switching unit to switch the charging unit including the charge adjusting circuit into a first state to provide the charging operation of said piezoelectric element in a first imaging mode or to switch the charging unit including the charge adjusting circuit into a second state to provide a discharging operation in a second imaging mode,

wherein said charge adjusting circuit includes a comparator portion configured to compare a reference voltage of the piezoelectric element voltage and to provide a first output indicating that the piezoelectric element voltage is less than the reference voltage or a second output indicating that the piezoelectric element voltage is equal to or greater than the reference voltage and the charging unit including the charge adjusting circuit provides the charging operation in response to the first output stops the charging operation when in response to the second output, and restarts the charging operation when the first output is again provided.

However Tanaka teaches

a switching unit (figure 5a) configured to enable a charging unit (26) including a charge adjusting circuit to perform a charging operation to charge said piezoelectric element (14) to a specified value of charged voltage (100 volts) by the energy accumulated in at least one main capacitor (CM) configured to supply energy to a strobe unit emission (26) or to enable discharge of said piezoelectric element (Col. 6 lines 19-28, col. 8 lines 13-23),

a control unit (figure 5b, 21) configured to control said switching unit to switch the charging unit (5a) including the charge adjusting circuit into a first state to provide the charging

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operation of said piezoelectric element (14 or Bi) in a first imaging mode or to switch the charging unit including the charge adjusting circuit into a second state to provide a discharging operation to in a second imaging mode,

wherein said charge adjusting circuit includes a comparator portion configured to compare a reference voltage of the piezoelectric element voltage and to provide a first output indicating that the piezoelectric element voltage is less than the reference voltage or a second output indicating that the piezoelectric element voltage is equal to or greater than the reference voltage and the charging unit including the charge adjusting circuit provides the charging operation in response to the first output stops the charging operation when in response to the second output, and restarts the charging operation when the first output is again provided (col. 10 lines 3-32).

Therefore taking the combined teachings of Udagawa and Tanaka, it would have been obvious to one skilled in the art at the time of the invention to have been motivated to have used the arrangement of Tanaka having the claimed limitations (A) and (B) with the arrangement of Udagawa where the piezoelectric element is used for displacing the imaging device in order to have a sufficient allowance so that if the main capacitor discharges below a certain voltage, it can be sufficiently charged with the method taught in Tanaka.

[Claims 5, 7, 10 and 12]

Udagawa teaches a digital camera (figure 1) for acquiring image data by acquiring a subject image by shifting pixels, comprising an imaging device (3) configured to acquire said subject image (col. 1 lines 6-8), a piezoelectric element (9) configured to displace said imaging device (col. 5 lines 49-52 figure 1) acquiring a first image in a state of displacing said imaging device,

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and to acquire a second image by discharging said piezoelectric element (figure 1: 9) in a state of not displacing said imaging device (col. 5 lines 9-12, col. 5 lines 45-52).

Udagawa fails to teach

(A) a switching unit configured to charge said piezoelectric element by the energy accumulated in at least one main capacitor configured to supply energy to a strobe unit emission or to enable discharge of said piezoelectric element; and

(B) a control unit configured to control said switching unit to provide charging operation of said piezoelectric element or to provide discharging operation, wherein said switching unit includes a charging switch circuit configured to turn on or off charging of said piezoelectric element by the energy accumulated in at least one main capacitor during said charging operation, a discharging switch circuit configured to turn on or off discharging of said piezoelectric element, a detecting circuit configured to detect the voltage on said piezoelectric element, and

(C) a comparing circuit configured to make a comparison of the voltage on said piezoelectric element detected by said detecting circuit and a reference voltage, said charging switch circuit configured to turn on charging of said piezoelectric element when the comparison indicates that the piezoelectric element voltage is less than the reference voltage.

However Tanaka teaches a switching unit (figure 5a) configured to charge said piezoelectric element (Bi or 14) by the energy accumulated in at least one main capacitor (CM) configured to supply energy to a strobe unit emission (26) or to enable discharge of said piezoelectric element (col. 6 lines 19-28, Col. 8 lines 46-57),

a control unit (21) configured to control said switching unit (figure 5a) to provide charging operation of said piezoelectric element or to provide discharging operation (col. 10

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lines 3-16) wherein said switching unit (figure 5a) includes a charging switch circuit (Tr2 and Tr3) configured to turn on or off charging of said piezoelectric element (Bi or 14) by the energy accumulated in at least one main capacitor (CM) during said charging operation (Col. 6 lines 50-66),

a discharging switch circuit (Tr4) configured to turn on or off discharging of said piezoelectric element (col. 7 lines 14-20), a detecting circuit configured to detect the voltage on said piezoelectric element (col. 8 lines 23-38), and

a comparing circuit (figure 5b, microcomputer 21) configured to make a comparison of the voltage on said piezoelectric element detected by said detecting circuit and a reference voltage,

said charging switch circuit configured to turn on charging of said piezoelectric element when the comparison indicates that the piezoelectric element voltage is less than the reference voltage (col. 10 lines 12-32).

Therefore taking the combined teachings of Udagawa and Tanaka, it would have been obvious to one skilled in the art at the time of the invention to have been motivated to have used the arrangement of Tanaka having the claimed limitations (A), (B) and (C) with the arrangement of Udagawa having the piezoelectric element is used for displacing the imaging device in order to have a sufficient allowance so that if the main capacitor discharges below a certain voltage, it can be sufficiently charged with the method taught in Tanaka.

[Claims 6 and 11]

Udagawa teaches a digital camera (figure 1) for acquiring image data by acquiring a subject image by shifting pixels, comprising an imaging device (3) configured to acquire said subject

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image (col. 1 lines 6-8), a piezoelectric element (9) configured to displace said imaging device (col. 5 lines 49-52 figure 1) acquiring a first image in a state of displacing said imaging device, and to acquire a second image by discharging said piezoelectric element (figure 1: 9) in a state of not displacing said imaging device (col. 5 lines 9-12, col. 5 lines 45-52).

Udagawa fails to teach

(A) a switching unit configured to enable a charging unit configured to enable a charging unit configured to charge said piezoelectric element by the energy accumulated in at least one main capacitor configured to supply energy to a strobe unit emission or to enable discharge of said piezoelectric element;

(B) a comparing unit configured to compare a reference voltage corresponding to a predetermined amount of displacement of the imaging device with a piezoelectric element voltage and to provide an output indicating that the piezoelectric element voltage is less than the reference voltage;

(C) and a control unit configured to control said switching unit to enable the charging unit including the comparing unit to enable the charging of said piezoelectric element by the energy accumulated in the at least one main capacitor in response to the output of said comparing unit.

However Tanaka teaches a switching unit (figure 5a) configured to enable a charging unit (26) configured to charge said piezoelectric element (Bi or 14) by the energy accumulated in at least one main capacitor (CM) configured to supply energy to a strobe unit emission (26) or to enable discharge of said piezoelectric element (col. 6 lines 19-28, col. 8 lines 46-57);

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a comparing unit (figure 5b, microcomputer 21) in the charging unit configured to compare a reference voltage (100 volts) corresponding to a predetermined amount of displacement of the shutter with a piezoelectric element voltage (col. 6 lines 8-18) and to provide an output indicating that the piezoelectric element voltage is less than the reference voltage (col. 10 lines 3-16, output NO of step # 50 in figure 6); and

a control unit (21) configured to control said switching unit (figure 5a) to enable the charging unit including the comparing unit to enable the charging of said piezoelectric element by the energy accumulated in the at least one main capacitor (CM) in response to the output of said comparing unit (col. 10 lines 12-32).

Therefore taking the combined teachings of Udagawa and Tanaka, it would have been obvious to one skilled in the art at the time of the invention to have been motivated to have used the arrangement of Tanaka having the claimed limitations (A), (B) and (C) with the arrangement of Udagawa where the piezoelectric element is used for displacing the imaging device in order to have a sufficient allowance so that if the main capacitor discharges below a certain voltage, it can be sufficiently charged with the method taught in Tanaka.

[Claim 8]

See claim 6.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Yogesh K Aggarwal whose telephone number is (703) 305-0346. The examiner can normally be reached on M-F 9:00AM-5:30PM.

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5. If attempts to reach the examiner by telephone are unsuccessful, the examiner's acting supervisor, Thai Tran can be reached on (703) 305-4725. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

6. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

YKA

January 31, 2005

  
TUAN HO  
PRIMARY EXAMINER